Rec'd July 12th

Detroit June 9th 1886

Dear Doctor. — Yesterday after prayers I went again to the Park horse marsh for some fresh Sarracenias. The Ass't P. M. informed me if I enclosed them in a tin Box as you suggested it would be subjected to letter postage and if I put them up in wooden or paper Box they would be smashed to flinders — So I concluded the safest & surest way would be by express. In this package you will find my Eureka & yours too & I fear to your satisfaction. The specimens were collected in one pond within an area of about 10 or 15 acres. This pond is close to the Park House but is the lower end of the grand Marais which I am told by hunters is 7 miles in extent up the river with an average of 1 or 2 miles in width. — The specimens wrapped in brown Manilla paper all had emerged leaves — each parcel being gathered at different places — Those in yellow envelope paper had floating leaves — The largest — ones in newspaper had some floating & some emerged leaves. I send in each the ripest capsules I could find growing with the flowers & leaves. I think by putting them immediately in water & keeping them a sufficient length of time that they will fully ripen for you so that the shape of the seed the embryo &c. can be well studied. — Since sending my Box of Sarracenias & commencing this letter yours of the 8th of July has come to hand this day but this is not in answer to my last in which I sent some Sarracenias especially one with the Rhizome of S. Batteaus. I am sorry my Elmwood specimens turns out to be S. alba's. Mt Elliott the Catholic grave yard adjoins Elmwood on the east. The S. rubra may be there. But I cannot promise a thorough examination before next Sunday. — After Office hours the time is so short that I have hardly time to get on the ground before it is time to return. — All the pure specimens of which I have sent you I found in great abundance and easily obtained — I have already flowering specimens of Rhodora Alpina Batteaus & pallidas. — Effusus I can get easily

We have Subaquatic forests of Potomogetons and Cirpuses but no meadows of Isoetes under the water I have all along ~~along~~ been on the look out for it. & will still continue to do so. I find under the water on Isolepis is something of the kind not more than an inch or two in height — I will enclose some in my next. I would do so now but my specimens are at my residence while I am at the office & to get them would delay my letter a whole day. I find no pelocarpus yet. I wrote to W. Wheeler who is near Copper Harbor on Lake Superior to look out for I Subtilis for me Since we went into the Insurance business I have received of yours dates of the 20th June July 1st & and today that of the 5th Inst. May be I have missed some of your letters

I am most respectfully yours

J. Asa M Bigelow

P. S. Austin is here & will remain certainly 2 months if not more. He will assist us in forwarding out the insects of our neighborhood. Enlist him in the campaign —

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Rec'd June 11th
Ans — 20

Office U.S. Lake Survey June 8th 1866

Dear Dr. Gray —

Besides your letter several days ago I lately received the Trans. St. Louis Academy of Science which you may be sure is most welcome. With regard to the Juncus Canadensis which you request me to collect in centuplicates, I will do so provided I can find it in this neighborhood. I went out last Sunday (too soon for flowers) to our Cemeteries, (by the way a very place for botanizing as a part of preliminary exploration for the D. accuminatus, Gray, but any thing in the shape of flowers there now is Nix Cum Anonne. On the roadsides out there & in the streets of the city I find the D. tenuis in its low forms in great abundance just coming out. When the time comes we shall see what we shall see. Austin numbers 15 species for Michigan but he did not collect them all he has only collated their localities for Michigan from Authors (principally from Gray) doubtless several of them are synonymes of the same species. This is his list: effusus, filiformis, Balticus, tetracea, scirpoides, paradoxus, debilis, accuminatus, articulatus, nodosus, Conradii, marginatus, tenuis, Lyceii & bufonius. If there are any among them either rare or difficult for you to get from other correspondents, please let me know what one it is, and if

It is within my reach I will procure as much as you want. How do you intend to fasten them in the herbarium? What of Schott? Parry? Wright? Thurber? or did one I think it has been at least 5 years since we had the promise of the elaboration of the Boundary Gramineae by Drs. Torrey & Thurber in the Smithsonian Publications! What has become of them?

P.S. I see you mention that the North American range of P. articulatus is very limited being confined mostly to New England. Now I see it in Austins list of Jersey (Fl. Bond Bot. P. 223) Dr. Schott collected it on Sonora Thurber at Fronteras Sonora & myself at the Copper mines. I also collected the 2 long styles at the Copper mines. I should think good specimens with fruits of P. Subtilis, to determine whether it really is only a variety of P. Polycarpus would be a desideratum with you. In advance I have requested from all of those of our young men who devote a portion of their time to collecting in the Lake Superior region to turn a sharp eye towards this among others.

Most Respectfully yours

John M. Bigelow

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Ans^d Jun 13^th

Office U Survey Detroit June 9^th 1866

Dear Doctor

Enclosed I send some fresh
Asphas gathered today at Bloody run — I hope
they will not dry before you get them so that you
can examine them in their fresh state
I suppose I need not tell you it is the one
you call Variegatum

Respectfully yours

Wm M. Bigelow

Dr. Englmann

such as H. Hookeri J. polygynus, especially the var.
J. fasciculatus under the name of J. polycephalus or J.
acutiflorus (Lege 58)

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abortivus Chap 456
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Vaseyi Eng 448
viviparus Lam 456

xiphioides Mey.

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Rec'd June 16
Ans — 20

Office Lake Survey June 13th 1866

Dear Doctor.

I do not Know Juncus acuminatus —
The enclosed specimen belongs to that division with knotted leaves, but it is too young for me to make out. Please tell me what it is. — I presume it is common though I have only seen it in one locality. In preparing specimens for your herbarium ought they to be pressed much? Are they kept in Dried or is it necessary to, both in flower & fruit?
collect
Last Sunday I found Juncus Balticus in fine flower.
I have commenced a paid on the Nephars I have already noticed several facts overlooked last year. With regard to these Nephars I will write again in a few days.

I am most Respectfully yours

John M. Bigelow

Dr. Geo. Engelmann —

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Rec'd June 29
Ans July 1

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Detroit June 25th 1866.

Dear Doctor

You enquired last year about the extention of the flowers of our Nuphars from the water I observe of both species that they are elevated above the surface of the water 4-6 inches during the opening of the flower after which it soon sinks into the water again. Some economy of the air tubes of the peduncle must be the cause of this because it occurs before there is sufficient enlargement of the ovary to cause its weight to bring it down. But I do not observe the spiral arrangement of the peduncle mentioned by Elliott in Nymphaea. I find in shallow water N. Variegatum at Bloody run & Mays Creek the leaves are emerged not so high however as in N. Advena. I have no doubt too that in deep water N. Advena would be found floating although I have not thus far seen it excepting late in the season after the spring leaves had died away. The divergence of the lobes of the leaves I find depends a good deal upon this circumstance. I observe that the ovary of N. Variegatum especially at its base is sometimes duskly colored brown when the anthers & petals are yellow but a little brown spot at the base of the petals & some of the anthers may be seen. In Variegatum I notice that there is always a second series of inner petals which are not homologous regular in number some of them though not all are manifestly antheriferous. This inner series of petals I have not seen in advena. If it is constant would it not be a good foundation for a name? On the external surface near the top of the petals of both species there is a nectariferous gland which I have found sometimes exudes a large drop of honey like fluid. This gland when dried produces a spot sometimes quite dark colored. The length of the filaments I notice varies a good deal. The petals vary from 6 to 8 I notice in several specimens. If our botanists had studied our two Nuphars more instead of the Nymphaeas I think there would be no doubt about their placing the order among endogenous plants. I enclose some pleces of the flowers.

The ternary arrangement of the floral organs is very manifest, though subject to a considerable variation

We have 3 sepals & 3 petals (or 3 outer & 3 inner sepals) the petals (or what might be called nectaries if we call the inner row of sepals petals) are about the same number as stigmas which are equal to the number of cells in the ovary which vary from 12 to 24 multiples of 3. The stamens are definite consisting of 6 rows each row almost exactly double the number of stamens that there are cells in the ovary & stigmatic rays of the disk. The ribs or veins of the leaves are very similar to Alisma & some of the Sagittarias. Every thing except the 2 lobed cotyledon is clearly endogenous. I want to collect ripe seeds so that you can by means of the microscope & examination determine certainly whether it is di= or mono= cotyledonous. It seems to me that the anomalous nymphaea has been taken for the type in place of the more regular Nuphars. Cabombaceae & Nelumbaceae would of course have to follow next. I am waiting for another flowers to come out so as to show whether it has tri= or hexandrous flowers. If it has triandrous flowers I shall be pretty sure it is your coveted N. Canadensis Var. brevicaudatus. — In getting the Baltecus I find I have to double him up so as to get in ordinary size paper In collecting it Sunday I find it has passed the flowering state but that I suppose is of not of so much consequence because both calyx & anthers are quite persistent. It can be exhibited in older specimens. 26th I find my flowers today in flower. Some body has put the dutch fix upon him. I will next Sunday or probably the 4th of July serve my country by faithfully rummaging Elmwood for your flowers. I enclose a specimen which I can make nothing of unless it be Nuphar nodosum Var. genuinum. Father Holzer says he gathered the Var. Megacephalus last year in the Straits of Windsor on the opposite side of the river. If this fellow is a variety with you or your other correspondents who have promised to help you by the hundreds I can gather it easily for you. It is small and the prettiest I have seen of the true Nymphaeas. Eureka. I have seen today a Nuphar with emerged & spreading lobed leaves colored Calyx with anthers & disk deeply colored a kind of orange brown I will send it soon. Respectfully T. H. Peglow

P.S.

Rec'd July 5th
Ans'd by

Detroit July 3rd 1866

Dear Doctor,

After saying my farewell — I went yesterday
I went to the graveyard not to look for specimens but to meditate on the shortness
of life as upon the length of Time & Eternity — & as I
sat down & in 15 minutes time — not to be certain I counted a dozen
I despise it is the one you would have left in behind, & would fully
understand I think their Majesty which I do not.— They are both
3 — as dozen but there destructive species are not yet developed
the real Warm & the Cold of Detroit I find — Seven times (counted a specimen)
where — I Caught (showed me) — Is there not some difference in Instinct
2/3 I perhaps from the ? — I Big times (counted a specimen) — I Rattle
Snake tribe of the variety we see the Great Moose, about South. *
— I Lizards, I Green ones, I four and three quarters inches of green Snakes

[illegible] — I [illegible] Dirty Brown & green Things resembling

* the City, I have only seen them in one locality & not abundant
there. I will gather two specimens in Alcohol & send the next
to Lansing I have in some other localities for Friends, different
— I common water frog, in pretty Pond in Elmwood Graveyard abund
ant. The Specimens I gather are certainly animals. I have
truly been shocking in most places in the walks, & dug out
Carriage way about 18 inches or 2 feet below what was in
Early March before [illegible] removed for the Cemetery. The
Carriage way & walks were excavated within the present
year, in the old Gravel walks, I saw none — I looked diligently
for Specimens on the Waterstreet near Gray Stone
Could find none. — Now tell me what you think of
all these & I care without any interference on either as much
of any or all you want & I may add it give me sincere pleasure to do
so I am [illegible] respectfully yours, I will [illegible]

– I found this Mayer? in woods of Ketchie Hollow along the road near the upper Trunk hunter pleasure ground –

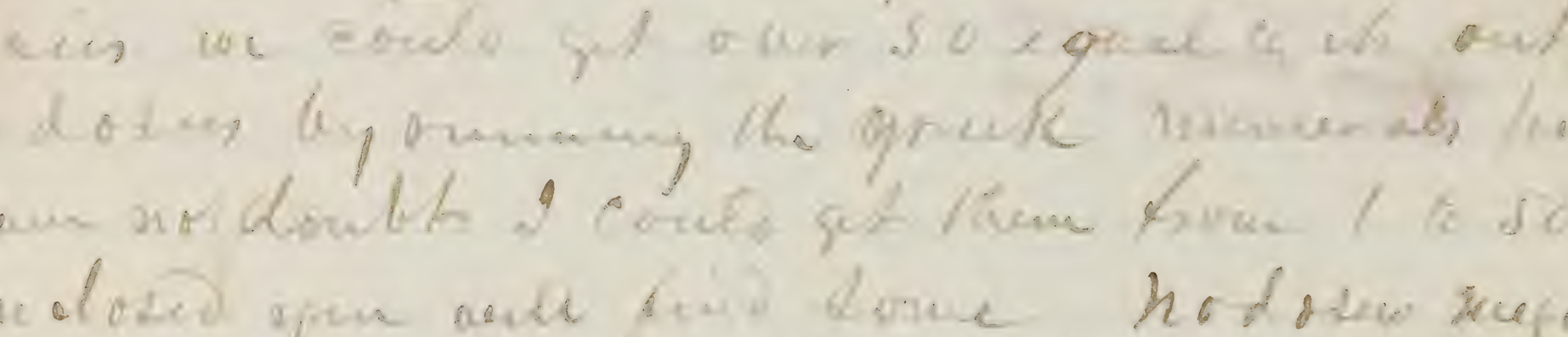
MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Rec'd July 9th

Detroit July 4th 1866

Dear Baker:—

What I meant by "Eureka" was that I found
related Mosses & Liverworts on one of those Hemlocks gathered in
Park Grove Swamp & of more than I have known Long before
Next Sunday I will gather some living from the same place
and send you by mail — The Cabels were correct I gathered
them both in One pond a large one through by the way.
The shape of the petals vary I believe as much as the
leaves of the Cerastium — Of color in our dried specimens
for I have seen it both Rose & Pure White
On the 4th I did get over drowned by Collecting Lycopodium
I guess, Cracked I did down more though I think you
have not received them all before. I suspect I might find
I pellisperum for you but I find the Swamp Forms
have 3 Stamens the Androecium of Epipactis. They are hard
to find — prefer having caught one in open flower —
The Rhizomes of 2 Batteas as manifestly represented
in your collection by the Specimen enclosed — I have already
collected a large lot with beautiful root stalks, & bladder
ed's down as they got dry I will send & gather fruiting Specimens
of the (2nd) — I will go to Ten Wheeler Swamp
also on Lake Superior & look out for Subtilis
It floating habit will well distinguish from all others
I can observe — Sent you 2 specimens from the
Cerastium the other day which I presume you have
received before this. — If Mnium cuspidatum is a good
species we ought get over 50 species & not out of
the dozen by examining the Spruce Swamps, but
I have no doubt I could get them from 1 to 50 easily
Enclosed you will find some Mosses which
I have not seen yet though for the Holy or Colorado
at in Utah last year.



With regard to the botanical portion of Pentstemon I can hardly say. — Mrs Chase's catalogue enumerates only Cobaea & Cuphea as Solanaceæ I have neither seen or collected & it is doubtful about being in Pentstemon — Austin has not as yet what he has collected but what he expects to find. They botanizing hands are almost as closely confined to the city limits so that I have no chance of finding Solanaceæ or even cobaeas — Cuphea I see grows near the city —

Yours Most Respectfully yours
Geo. Engelmann

P.S. Mr. Pallmer has Pentstemon (Penstemon Hoppe) I got the Ph at Salt Lake I am pretty certain I found it in Nebraska and Western Missouri also —

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Rec'd July 14th

Read July 11th 1861

Mr Adams.

(Included is a specimen of [illegible] in a deep ditch in Jack Sloats Spruce wood. — Was too young for me to name it — Can it be Spruce Pollen or Polycystus? Does half of the side of the leaf is conspicuously and deeply channelled I call your attention to it because in drying it soon after I collected it the canal is closed making it appear fungoid to a hasty and without close examination might be overlooked Besides it is not in either genus or Gray's subdivisions of Canaliculated leaves, but is distinctly nodose-articulate,

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Rec'd July 20th

Detroit July 17th 1866.

Dear Doctor,

I send today by Express Mail specimens of all the Trees in bearing fruit which I can find in my neighborhood. I had hoped that I could not finish & communicate to you. The City grounds I have examined but they are all as dry as a powder horn — no chance of specimens there. Sunday was too hot for me to venture out but I have examined Elmwood & Mt Elliott pretty thoroughly with no success. Can you not write to Prof. Leidy & get him to state more exactly the locality where he found the last year!

Lewis' & Prudence Patterson is fully ripe now & are also some of the Pollesen. Jefferson, Nicholas, Ethelinda & Burbonian will soon be ripe if not some of them already. Tell me which you want dried up.

My wonder is that I am watching to catch in flower, I will get today or tomorrow some flowering specimens

The following is the list:

No 1 The ever Effenden common growing in hedge rows & thickets Detroit July 5th 1866. — No 2 Patterson Belle Isle July 4th 66

It grows sometimes in large masses (not in hedges) like the Effenden sometimes singly from one spray to stock in the same also in fields in the middle of the Island — at the corner of the ground Nearest I found in bloom on the main side Park not in the country — No 3 Common roadsides every where. The vine decumbent on the dirt road near the ground Trunk Prostrate

No 4 Burbonian Elmwood July 1st 1866 [illegible]

No 5 Alpheus Mays Creek June 27th Belle Isle July 4th 66 [illegible]

in the waters edge at Belle Isle. July 6th collected the specimens
Mercy's Creek. June 29th Belle Isle July 4th 1866. very common
growing in the water & banks of streams. — No 2 Pollia was
found growing in large specimens at Elmwood July 1st
& Clermont in front of the Post Road July 5th 1866. —
No 8 Id. — — — Det Elliott gathered near Artesian
Well road near ground Frank Newton July 5th 1866.
I can make nothing of this plant from the books.
I cannot even imagine what it can be included in your
Pollieae nor Tradescantieae where the locality is so much out
of place as the Dichorizandreae. — Yet the spreading sessile
& petioled leaves give it an aspect so different from
the other variety as to make it seem impossible. The
flowers are also quite different. Walpers enumerates
D. decipiens in his catalogue & I have little doubt
this plant has been taken for it from its tall robust
& erect appearance. It does not agree however
with Grays account of the Decipiens. The specimen I
enclose is a decade one on account of its size & open
panicle. It usually grows about 2½ to 3 feet high
No 10 — Chara — nitella? — and some little dense pale
plant all growing together under the water at Belle
Isle July 6th 66. What I take to be nitella is only a
fragment which I grabbed up with my Chara. I did
not notice it until I came to put away my plants

Respectfully yours please write soon.

J. M. Bigelow

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Rec'd July 27
Asa Gray Dep

Lake Lenawee Detroit July 24th 1866.

Dear Doctor. Enclosed I find some specimens which I can not make out unless they are abortive forms of P. alpinus — The Plant you took me with the alpinus is very abundant on the sandy edges of the river bank mostly in the water with the Leaves perfectly superior. The present plant is also abundant in several localities in marshy grounds. The tall specimen was in a meadow on Mary's Creek & the smaller one in a marsh near Elmwood. I collected the larger one on the 19th and the smaller on Sunday 22nd — In the whole field with thousands of specimens I could find none further advanced but what I see in those I send. — As the pilocarpus is very variable in its forms I send them all to you to see if it might not possibly

MISSOURI BOTANICAL GARDEN
ENGELMANN PAPERS

be one of them — especially as in your hypothesis you do not give any counties of the altitudes.
Hunt overgrown pasture at Mt Elliott & the railroad pastures to the Hedysarum vaginalis. Would very different it looks from the specimens I / My Specimens of the Baltimore in front attract of the Park House Hemidactylium not good. I will get some better from the Island the first opportunity I get for growing over —
A Country man near the city proposed to take me to a cranberry marsh about 8 miles distant. I Shall accept his invitation
Is there any thing there particularly that you wish for? If there is tell me what & if possible I will obtain it — Open over me down at last I can not wait for fear the flowers will spoil — I am most Respectfully yours J. M. Bigelow

Ans Aug 3
Rec Aug 27

Detroit July 31st 1866

Dear Doctor! Your letter of the 27th inst is received with pleasure as it relieves from the fear that I had disgusted you with my stupidity. — As the Asaphan question is settled I will only enquire if advena was named before Lutea! One excuse for my stupidity with regard to the Juncei was my anxiety to obtain such forms as you wanted for your Herb. Normale which I am glad to hear will turn out so well for you. I began to collect them ~~to collect them~~ before the characters by which they can be distinguished were developed — You will excuse me I know when I tell you I am even now ahead of myself! When or where I obtained ? articulatus which you say I sent you I can not tell! probably I confounded it with T. alpinus. I Canadensis is just coming into flower — I have been deceived for a week or two past by the taller legs than you indicated the want of chestnut color & blackness of the spathe, &c It is beginning now to show itself The panicle has opened out here these a week but the flowers develop so slowly — I cern gather plenty in all its stages In the leaves which I enclose I find sometimes more than 3 stamens — This matter too young yet but you can find the stamens very readily —

I found yesterday I Triquinatus, in bud very distinct and easily recognized. It looked so much like a Luzula that I was not certain until I came home & examined the bud

Rec'd Aug 3

It is so much easier pulling down than building up morally or physically (witness our Dolous tapa Latin Polygalas Mexicanas &c.) that I am afraid to promise what I can do for I Nuttallianus - I will do my best however. I can find it now almost every where. —— I will in a day or two send another bundle of specimens by mail of the different forms of Canadensis &c. gathered in different localities — as I sent you articulatus without knowing it you will very likely find pelocarpus of the Canadensis form among them. The unusual form of I tenuis which you mention is very common with us but I fear it is rather late to gather a full suit for you the capsules of them are already burst. It will be common I collected only a few specimens before.

Most respectfully yours

J. M. Bigelow

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Rec: Aug 11th
Ans Aug 27

Lewis Lake Jersey May 5th 1866 Received

The following is a list of the specimens shells sent to you

specimens by the Indian Mail. —

1st 1 Margaritana Mary's Creek July 25th 1866 — 2nd 1 Unio from the Grand

River near Mary's Creek July 25th 1866 — 3d 1 Unio from Mary's Creek

July 25th 1866 — 4th 1 Unio Huntingtonia — 5th 1 Anodonta from Mary's Creek

— 6th 1 Anodonta from Mary's Creek July 28th 1866 — 5th 1 Margaritana from Lake

Erie July 1st 1866 — 6th 1 Margaritana Belle Isle Detroit River 31st 1866 — 7th 1 Unio

from Detroit River July 31st 1866 — 8th 1 Anodonta from Maumee River July

31st 1866 — 9th 1 Unio from Maumee River July 31st 1866 — 10th 1 Unio Elliott July 17th 66 — 11th 1 Unio

Unio from Grand River July 18th 1866 — 12th 1 Anodonta from Mary's Creek July 18th 1866 — 13th 1 Anodonta from Mary's Creek July 25th 1866

14th 1 Margaritana, high Bridge near Fort Wayne July 25th 66 — 15th 1 Unio

Canal cut — I think it came from Belle Isle July 4th 66 — 16th 1 Unio ?

near Fort Wayne May 2nd 1866 — 17th 1 Unio ? high Bridge near

Fort Wayne July 25th 1866 — 18th — ? Meadow Branch near Mary's

Creek July 18th 1866 — 19th Canadensis ? Meadow Branch near Mary's

Creek May 25th 1866 — 20th — ? Same time Planorbis — 21st Cancellata ?

Belle Isle May 3rd 1866 — 22nd Canadensis ? Branch near

Elmwood May 26th 1866 — 23rd Branch near Elmwood May 26th 1866

Write respect to Margaritanas I am not disposed to say "Cancellata"

the color of the beaks, the size of lobes, and crenulations, and [illegible] whether they

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as I can find time & conclude a species & do not hesitate to be the determination. — I find the specimens in connection with Engelm about the size of Peace. Mega cephalus have stems as represented flowers & smaller about the size of peas. Not in connection to leaves & on large flowers. I see some bulb formed specimens but do not think they are the Mega cephalus until I see them. The Mega cephalus is only three connected with a tuber & not a bulb — grow on a stalk 2 to 3 feet high — grow in clusters about only about a foot or so in high — Have yet many unopened

The other plant Parkia Mexicana is a Mimosa shrub about 10 feet high. — I think it is the 12 to 15 feet

Upon inspection me to market for the purpose of sale I am [illegible]

I have already sent a part (~ 100 lbs) of the remainder — Express

Buttons (not shipping which I packed including the bundle by mail my limbs instrument but the pods of [illegible] not received them because they weighed more than 4 pounds —

Will it not be cheapest to wait till all my specimens are gathered and then send them by Express in one batch

it will then go for $1. I by mail in 3 or 4 packages — which cost more. — I will send them however by mail if you think best. —

Yours Respectfully

Frederick Wislizenus

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Rec'd Aug 19th
Ans. Aug 27 Detroit Aug 13th 1864

Dear Dr Gibbs — I've enclosed [illegible] sent me by Mr Walter Hodges with drawing only. Since he has come to the conclusion that it was a Gorgonia how very extraordinary it must seem that Gorgonias have often been confounded with Corallines & Hydrozoa & conclude it cannot be otherwise than that the creature had a fine skeleton which can be obtained in abundance with care & attention. I have not the least doubt but that I shall have [illegible] of these & also all sizes of the present species.

Megacephalites & Nodosus in the Shape of the Lepus & Cabbage Caterpillar — Double nodes often occur, but the Lepus is quite different megacephalites being much larger than Nodosus. There is a variety of Nodosus which has in its young Some what resembles Megacephalus but the rhizome panicle heads flowers protruding capsules seeds and (not withstanding the larger stem) its whole size exactly corresponds with Nodosus. The Stem of Megacephalus is rigid & stiff to hand while those of Nodosus the two forms are quite weak & easily bent.

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ed suspicious circumstance with regard
to the three flowers in Bal they are often found
growing close each other. P.S. I found yesterday
another form which pleases me much — I think
it is either a pentstemon or chamaelirium of another
species or variety, or it may be a hybrid
between them. The nodosus has the upper
leaves opposite, the lower alternate, the
stem is hairy, the flowers in a
close panicle. The stamens are hairy
at the base, the filaments are
dilated above. The heads are orange or straw
colored, smaller than the nodosus but the ovarium
larger than the former, like the Missouriensis,
stem hairy, leaves opposite,
the lower ones petiolate, the upper sessile, the
flowers in a close panicle; I could not find
the capsules; I will send you specimens
as soon as I find them. — If you have occasion to
make observations in your journal about
the Yucca please give the credit to Father
Hodge for the seeds, it is from Texas. —
Yours respectfully
John H. Klepetka

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

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Rec'd Sept 6
Ans Sept 12

Detroit Sept 3rd 1861

Dear & Obdt.— I inclose Plants and notice "Marks" which shall keep lasting as long as I can in spite of Passengers.— Before pass it off for Inspection I can pronounce for it good. The inner Depth of Perforation are Critical but in this Way of Specimens which the Color runs are conspicuously moved. The Distance in Height is nearly globose. in Plan it is obovate being at least 5 Eighths in Breadth. Leaves very narrow. When Plant attains more Maturity and the Bulb at the Base of the Stalk entirely annulary, reclinate in Habit with its Normality Inherent. The globose heads of the Flowers in Summer like yours Pure. Pierce exfoliates. The Plant is etc. Its green leaves to the ground. Best of you are accepted in Exchange and you can send Bulbs of Lilies & Bulbs of the Dark Purple Hyacinth with Names Specified. I cannot see a Difference. If it is of any importance for your Records Please write immediately & should soon pass away.

Tell Perry of the Ferns of the Lake Superiority Marks longer & will challenge him to single combat — Ground — Pieces of the best of Wonderbes on Specimens or Jersey's Parks, Myers —

He may commence the duel by complied by shooting between the weapons of Opp. Hysterema or Pos Corii — I shall retain the privilege of pike my him with my Sagittaria sagittifolia last at the same time he may decry my blow with the Shield of catastrophic pictures. If we duelers are only adopt the motion "Primitive War is not dramatic, in prose"

Yours Respectfully & Sincerely yours,

W. Asa Gray Beecher

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Rec'd Sept 4th
Ans Sept 12

Oakland Sept 1st 1866

Dear Doctor

I send hymnal today some notions of Indian Fairies & Gnomes. I think they will grow as I was careful to tie them up with consider-able quantity of medicated soil - You can find on one of them a little Indian. — If these fail in consequence of having been taken up too early I can get more in October or November if the heads do not drop & fade away so that I can find them — and then in the season I took them then, early so as to have a double stamp & my boxes and make a dense stamp of it. I would have given any thing on the world if I could have had upon letter of the 27th ulto before I left mine of about the same date enclosing divers inside pericles of our plants. — Ha ha ha! if we did make a nice double discovery! did it not make a nice jumble of them also? No wonder you trembled for fear of my Eureka! You say it is wonderful that the Indian Gnomes & Fairies should meet so close but you will wonder & may be tremble for fear of my dreaded Eureka again when I come to tell you there in all the location,

where we find the one there side by side grows the other. — In a low rather swampy (wet in the spring but perfectly dry now) pasture field 2 mile, south of the Grand Junction on the Southern Rich road we found them in abundance Of the growing Specimens I gathered both within 12 inches of each other. — Yet they appear as distinct as can be I can tell one from the other now by the capsules, alone as easily as you can tell an apple from a tomato. — One reason of our stumbling thus we, were in innocence of a suspicion of the two growing together another, we saw the differences in the capsules but supposed it was caused by the riper state of the one — but how different the capsules open? Then again we saw the differences in the leaves but we thought without a close examination that the leaf had curled from old age and became apparently nearly circle as they sometimes do in terms. — Father Holzer (his initial is L. Laurence) found them by working often the filiformis which he suspected ought to grow somewhere in this neighborhood We found them together near Sandwich on the Canada side of the river.

I put up only Battieus effusus & velutinus thinking to send by mail but they were too heavy. — Besides these I can give you any quantity of Acuminatus, fastigiatus (Callescens) which I the 2d and some mistook for the Canadenses (Goaps Accuminatus) & gathered in quantity. Also Stolonifer genuinus & Megacephalus & Velutipes as much as you want. — The Canadenses I got in fine flowers & now again in fruit but I guess I had better gather again a little riper. — The green Spreading panicle of Stolonifer apparently intermediate between genuinus & Megacephalus I saw in a meadow near Mayo Creek but it was mowed down before I had an opportunity to gather in quantity. I have a hundred or more good specimens of Gregarius in fruit & a hundred indifferent ones of Vaseyi the capsules all opened. I expect them to be a month earlier at least than Gregarius

I shall look for Commendatore for my industry at least when I get through. — I am so glad you are getting through with the Cholera. We have had none here yet. We will be apt to have a little touch of it next Autumn just to see how it looks. — Most & Respectfully & cordially yours John M. Bigelow

Letter to Dr. Engelmann
from Dr. J. M. Bigelow
Sept. 12th 1856

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

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Rec'd Aug 29th
Ans same Day

Oxford Aug 27th 1866.

Dear Darton — We fear the Chevron wheels, found by the Papers in Exhibition at St Louis gave you little time to look at a grave one. — In my last letter I enclosed a strange looking one found here by Father Hodges — since then we have found & collected it very abundantly in Kent. — It is so strange that we are anxious to hear from you about it. We first thought it was Greenii and I gave Vasseyi last year then I have put the seeds under my Microscope with only a 40 diameter power — and by it it compares exactly with the leaves like Elliotti dichotomus. The seeds of Vasseyi & Greenii you say are Costate & Carinate. The Stock, with 2 & 2½ grooved Stem & leaves of our plant in like Vasseyi — the roots rather corpulent & contracted panicle like Greenii — the dark mahogany ripe pods & persistent green Stem like Leichtlinii (which the matted roots & distinct but short whitish appendages of the seeds are exactly like them. —

I enclose the branches of three Specimens — one with empty capsules — one full of seeds — and the 3rd in bud but I fear too young to show the anthers & pistils. Your time & resource is entirely occupied with your professional engagements — but if you can only find one moment

time to day whether it is Vaseyi or Lyonii, or not
you will oblige me very much. Leaves or dedicatory
remarks in case not be. The general size of the plant
is 18 inches to 2 feet but occasionally it will be found
3 ft or even 4 feet high. It has a much stronger fibre
than Texana. — The Indians in early times used to
manufacture much beautiful fragrant baskets, here
and I am anxious to find out if they do not the
plant from which they procured their material
Hoping to hear that you are not entirely worn out
with efforts to slay the Epidemic I am most respectfully
& cordially yours
Geo. Engelmann

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

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Rec'd Sept 24
Ans same day

Detroit Sept 22.d 1866

Dear Dr Engelmann

Your last letter dated Sept 12 th 1866
is, I fear about one month too late. — Immediately upon
its receipt I went to Belle Isle where Asplenium
ebeneum, by himself & all the seeds as you suggested but not a
single capsule ripe or green could be found — only one single
stray solitary flower was seen — They have all passed away for this
season! Tomorrow I will visit the Park Marsh where I will
procure the seeds of Aspl ebeneum if they have not all passed
away also. — You may not be aware how difficult it is
to get ripe seeds of these plants, so long as the green capsule remains
upon the pedicel it is at the surface of the water, — when soon as it is
ripe it bursts irregularly (that is not a circular, but somewhat so)
from the base of the capsule at its attachment to the torus or
pedicel sinking immediately to the bottom of the pond. — The
placental cells, equal in number to the stigmatic rays, then
spontaneously separate, as an Open disposed Rose of an orange
after it is peeled. The ribbed rind of the fruit remains
attached to the stigmatic disk for some time after the seeds
have fallen out. The best thing I can do for you this
season is to send you the seeds I gathered on August 10th

I treated. — the following manner. I took the fullest developed pods I could find of different localities (all in the same pond however) tied each variety together & marked a number to each. I then put them in a tub of water and let them remain until they started spontaneously from their attachment to the leaves. I then gathered the scattered placenta & seeds on paper and dried them thoroughly in the sun before putting them away in the herbarium. I will send them as dried on the paper with the leaves & flowers of corresponding numbers gathered at the same time & place. The best way would be to gather each variety in different localities and at different times when there would be no possible change of them [illegible] becoming mixed. From O.K. Section 29, 5 miles from Oakland County adjoining north of this. I can send you some specimens I have described in fresh — I will take you on my next visit I come near over running [illegible] Command me freely to all you may [illegible]

Respectfully yours.

[illegible]

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

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Rec'd Sept 12
Ans'd ——— 19

Detroit Sept 9th 1906.

Dear Dr Coker — I am so fully of "Secretus" that I can not resist an endeavor to say a word about the Paucicapitatus. In a letter of yours of the 20th June in speaking of Austrinus & rotten of the Michigan Forest you say you are sure he has not D. Setaceus, Scirpoides, nor Greenii. Sometimes ago we sent you Greenii & today I send Scirpoides, or if not Scirpoides it must be something rare. It agrees very well with the description of D. Scirpoides in Gray's Manual excepting that the Capsule is short & abruptly pointed and the whole plant is not stout but rather slender. The Specimen enclosed is single headed & I have used a part of the same to examine the distinctly 3 androus flowers. The rhizome is attached to the plant but I fear it will break off in the

transmission of the letter through the post. I have specimens 3 feet high with panicles of 12 to 18 heads. The specimens I have gathered are all old with seed dispersed.

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Rec'd Oct 11
Ans'd Oct 30

Detroit Oct. 8 1866

balance see 2. June marginalia

Is one less is out of the way. How for the Pleiocene you
Do you want Helix ericetorum Say, Living specimens of Valvata
tricarinata? I collected them & sent at the time you wrote for
them they might be lost for this year if I waited until the time
you designated. If you want more I can easily get them
for June. I have not visited that locality for some time but
I have got you good duets of two varieties of Limnaea
humilis, Lab. & var. palustris & C. longiscata. I will look
up more & see if I can get the Lab. var. & C. latissima. When here
Some of the forms of Arionidae (Pallifera proper) look
much like Cuba non longiscandata that I have been puzzled
by them — They are more distinct & easily recognized after they
dried. I did not get the Lygi- in flower because I thought
it was the pallescens which I had gathered twice before for the
Cuba dentata. I have a kind Dame set in front for you

The large one of Hook grows every where with none of the slender ones with it. I find the slender ones only in one locality on the Canada side but growing also with the other. In speaking of the specimens sent in a letter you mention that the bulbs are frequently absent but as being on the roots or stolons. With our common kind the bulb is always on the stem at the base where it is attached to the root. The Rhizome is not bulbous but elongated & very brittle & easily broken off. Those upon the variety appear to be more numerous than on the common one. —

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

They are all ready now to send at any time. I am most respectfully yours

Asa Gray

P.S. I have full sets of the varieties of Asclepias

Rec'd Dec 24
Ans. Feb 24

Detroit Dec. 20th 1866.

Dear Doctor Engelmann.

Your letter of 12th ult. & 9th just have been received I delayed a little my answer for the list of Mr. Wheeler which I enclose I hope you will find it satisfactory. That Equisetum scirpoides is quite common although I had confounded it with E. arvense. With regard to getting 100 specimens of I. stygius next year I do not suppose as Mr. Wheeler said it seemed quite scarce at Isle St. Ignace where he collected it. If our young men who go up into that country in the Summer could become familiar with the different forms of the Juncei they might possibly come across I. debilis which I judge would be a fine acquisition than I. stygius. Mr. Wheeler Mr. Foote & Mr. Gilman all have a taste for the Cultivation of Botany and if when it is finished you could send them your Reviseon of Juncei it would assist them very much in Collecting as I know from my own experience It much pleases & gives me pleasure to find

that you can make use of those specimens
I sent you. From what you hint about
wanting 100 specimens of S. Stygius & better specimens
of S. Phaeton. I presume you will require another
year to furnish your Herb. Normale and if
I should remain in Detroit another year I
should feel better qualified from past experience
to assesh you in the collection of more and
better specimens. The department of the office
in which I have been engaged is said to be
suppressed from want of appropriations and
so it is uncertain whether I shall stay here
another season.

I am yours most respectfully
J. H. F. Bergstrom

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

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Rec'd Jan 28
Ans Feb 24

who could be helpful to send me a
small list of specimens for Asa Gray
I have collected in Oregon & would
in exchange, & also to
a small botanical specimen box
specially designed for mailing
plants. Hoping to hear from
you in the future & to be able to
have the pleasure of showing
you the plants I have collected
& others I hope to collect in the
course of the season,

I am
Yours very respectfully,
Miss M. Peebles

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Rec'd May 15
Ans Jan 24

St Louis Mo. Jan 24 1867

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My dear Doctor,

The business that I came North for, I hope I have settled to your entire satisfaction. I have left with Mr Engelmann a duplicate of my report to the Secretary of the Interior, & leaving your interests in the hands of the Committee & Mr Engelmann, I now start Southward by the next train. I was disappointed in not receiving your letter of the 15th inst. before I left St Louis, but I suppose it was detained by the storm. I shall be in Memphis in four days — stay by the Steamer — & may see you in Mobile first week in February. If you choose to address me there, I will get your letter. Will you please write me a few lines by return mail, telling me how you are getting along, & what success you have had in your business. I shall be very anxious to hear from you, & hope you will write me often. Remember me kindly to Mrs Engelmann & Miss Mary, & believe me

Yours very truly
J. M. Bigelow

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN HERBARIUM

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Rec'd July 11
Ans July 20

187 Second Street East
Detroit June 2/62

Dear Doctor

Yours found Mrs & Children
in usual health. Sorry to hear
of Mr. Sartwell's ill health. Glad
Canada thistles are not known
here. Cover sprouts for corn shall
be used. Have also been engaged
in the culture of the grass, etc
I am a collector of plants. The following are
collected this year. Specimens of 3 species of
Isle Royale last year also not yet known
this year. Have not yet leisure to do
botanical this year. Will send today a package
of woods from Isle Royale. Have not yet
time to look over the specimens of this year
in Isle Royale. Have many specimens duplicate
& some rare. Shall be glad to exchange
specimens with you. Have also been engaged
in the culture of the grass, etc
I am a collector of plants. The following are
collected this year. Specimens of 3 species of
Isle Royale last year also not yet known
this year. Have not yet leisure to do
botanical this year. Will send today a package
of woods from Isle Royale. Have not yet
time to look over the specimens of this
year from Isle Royale — Shall be glad to exchange

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I presume you acknowledged every letter
sent the contemplated person you wrote to
but I remember the difficulty I had you
I obliged me to the Presidency of Georgetown
but I fear it will be removed before I can
get the papers I should be very happy
to have you here, but I fear not more pecuniary
The difficulties of Bradley Carpenter, I shall pay
Rodgers some time this week, I pray
you write me if you can that I may
be relieved from my embarrassment
in regard to Rose the Indian boy
in Washington. Tell him he ought
to write home to his parents. I shall
not forget your thanks he ought to have
written me before Stanley! Respectfully
& Cordially yours Father De Vos

P.S. I sent a work last before today
may letter I have wanted very to write of
Pentagon Pioneers with Dr Southwick (by
the Way he wishes to be remembered by you)
and it was well-for I Pentagon wished
the pleasure most of pleasure. I collected &
pressed full fresh seeds for you. I pioneers in pot
in case I write probably be a week in the
Chicago before it will be in pioneers.
I find there is no danger of my playing
the "Hook" on open water organ to these
two spheres. They are more readily &
readily distinguished you a rule often
now there either they have gone to
bed by Southwick to grow with me
on Monday to visit the locality of the
Pentagon Pioneers, as much to see you
Ours as for the Pentagon Pioneers.
P.S. Have broken your left day a week
about that hunger on the Nebraska while
I don't get on my track Please do not
forget the Pentagon Pioneers. Some time
Pentagon
ago I spoke with him about my present plans

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stone cafe. I have never been what he
has written about it. Have you it pub-
=lished? I would like to see it.
I enjoyed the stone cafe & the country
but the weather, the scenery that followed
the rain, the scenery by Colo...
& her comments & [illegible] the drive left [illegible]
on a dusty [illegible] over the [illegible] country
was to make it [illegible]

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

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Rec'd July 15
Ans'd " 16

187 Second Street, East
Detroit July 12th 1867

Dear Doctor.

About 3 days ago I sent by mail a package of seeds. The package with my green Grass & other seeds was gathered near the ground Fourteen on the 27th June, Those Brachycarpus & Some others on the Canada side of the river near Sandwich on the 1st of July. The third package of Gramineæ, Hookeri at the old place on the Rail road on the 5th of July. —

Is the inclosed Rodosen the intermediate variety which you wished for? I find it in the same Meadow where I obtained it last year & it is the only locality where I have observed it. It is rather young to collect yet if I do not get it in other State I can not secure it as they are beginning to mow the grass already. —

I will get you a full suit of Gramineæ in flower with roots & also Veratrum half ripe with roots. The half ripe tops of also
Veratrum as you desire. — I was lucky for you in not

per myself

^ in finding a locality of Grami & Vasayi where it grows in abundance. It is spread around pretty widely on the Lake as well as in Savannah but every where else it is only in Scattered clumps of only a root or two in a place — & would have been difficult to collect in the quantities you desire — I will send another package in a few days which I have in part with roots as you directed in your last. —

In haste

Most Respectfully & truly
Yours M. Bigelow

MISSOURI BOTANICAL GARDEN
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Rec July 27
Ans July 29

157 Lewis Street East
Detroit July 25th 1874

Miss Lucia Bowles

"Pile of the clothes-line"

I shall write you to-day the Wolverines are back
still to prevail over the wiles of Michigan
but the Wolves in the Spirit of the Lambs
are not so plentiful — After receiving your
letter I took a ride in the Street cars & Who
should I see there Lavina & Edward out Enjoying Spectacles
and not drunk either — I then went to Grand
Rapids, Ottawa — Then to Grand Haven Ottawa —
Then to Pioneer Creek Mills — But on my
way home from Pioneer Creek I stopt at the
Grand Rapids Grand — (the capital — I am sorry for
the Inhabitants) Where I discovered the Elephantine
Post Office a Large & pleasant Place about
half the size of the head of a pin. If ever the
Men have to collect Specimens Here Beware!
In the afternoon I called & did not see

the Mother very pleasant but by getting
Ripley onto the Branch Ry may possibly
prevent — I succeed in Short attached
yesterday. It seems to me you could have to
use on your Shorter line to Rebel Town
They run a mile down to Ten Rock Fork about
reading & Ripley and then with the Same
mile have to go back a little more & do not
travel. Your Trains are all Ready now
except Wood from Wartrace & Day or
two I can send lots of Wood from
Stewart Co. & the Same time with
both Locomotives if Needed. Please write me
with regard to the Bridges

Most Respectfully Yours,

J. H. Devereux

P.S. Today I came not see the Ten Rock
but there are a few among the Trees
because I could see them plainly yesterday
when they were fresh cut as you did-
Print H. Wood

MISSOURI BOTANIC
GEORGE ENGELMANN

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Rec'd July 31
Ans Aug 7

197 Lawrence Street East
Detroit July 28th 1862

Asa Gray LL.D.

Dear Sir

I send by present mail a small box of Woodsia with probably some
specimens of one of the Lycopods — also a
few fronds of what I take to be
Struthiopteris Germanica. They were gathered
at the lower end of the Grosse Pointe
near the Park House — two miles S/E
the Town from the City.
From the road upon some low ground
I have as many Specimens as you want
but I would like to know how I
can to forward my Botanical Specimens
& my Shells as well do Lawrence & it
a Specimen & much would be sufficient to
give them after being pressed.

Most Respectfully yours
J. M. Higgins

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Aug 2 - Aug 7
Aug 2nd 1867

187 Second Str East
Detroit Aug 4th 67

Dear Doctor:

Don't be alarmed at my "Eureka" I enclose a Wolffia so different in the outline of the frond that I think it cannot be W. Columbiana. The float and outline of the frond is very different from W. arhiza and its appearance is different from genuine specimens of Wolffia Columbiana that I am pretty sure it is something else. Wolffia arhiza was once called Lemna. Is it characterized by the flower of frond or merely by the frond? If it is by the former it will be very interesting to catch the little fellows in seed. My Wolffia? is about .3" or .4" in length and .1" or .15" in width & that it is a good deal smaller than W. arhiza. May I expect soon to hear of my pack a hovering?

I found them at the River Rouge in company with the Lemna & Wolffia

arthuza in great abundance.
If they do not come safe in the manner
I have put them up, I will send
another batch in a little bottle.

Respectfully & cordially yours
J. M. Bigelow

While writing I received a letter from
Dr. Sartwell. He wants our photographs.
He enclosed the accompanying lines
Lewis saying he supposed I would con
demn it as the merest tabu. I. Lewis.
I think it is probably the vanity you
wanted me to gratify for your last year

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

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Rec'd Aug 17
Ans — /20

187 Lenox Ave East
Detroit, Sept 15th 67

Dear Doctor;

I send by (miscarriage)
ancient Lorus plant from the Baton Rouge
Country Herbarium. I send them thus,
so that you get them without the possibility
of their being squeezed or deformed by pressure,
those I sent in a letter. I did not press at all,
By treating the present ones in a basin of water
you will find each kind 40 or 50 specimens of
them, (I only call it new) Wolffia to distinguish it
from W. arrhiza. But in the specimen one of it
arrhiza? I see Bennett argues the Lemna orbiculata
(which he supposes to be variety of Lemna minor
and which I suppose is the Wolffia arrhiza) thus —
∞ ∞. Now ours is perfectly globose, just
as round as it can be ∞ ∞ ∞. ∞ —
With regard to step 2 of the other kind, you
ask if I can distinguish the stem as well!
No, not easily. When fresh easily enough on the
under I find. They are very readily distin-
guished from W. arrhiza, but when the

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germination how much of that is broken off which occurs very easily, and often, I cannot tell one from the other.

Upon close examination that the bright green portion of the gibbous or one sided Spectrum is that portion which stands above the water, as you suggested.

I stand corrected with regard to the size, I did not measure them, but still, the grown Specimens of Aruba are a good deal smaller than the full sized Ar. carduza — I thought only to proportion the size to those measurements you gave of Ar. carduza.

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

You have committed me on a job, (watching for the flowers & fruit of Aruba dracunculus) in which I expect to be about as expert as an Elephant would be in dissecting the toe of a gnats foot. But I shall do the best I can, not expecting any success, I shall be better disappointed if I do succeed. — I have no idea when the little fellows flower & fruit. When I first began the study of botany in Ohio, I counted ten Lemna in flower — or rather the anthers of a

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MO

a flower, but as I took no notes I do not remember what time of the year, or what kind of a Lemna. Tell me all you know with regard to this. I will make a rough aquarium and water some of them, if I can, so as to keep them close at hand all the time. The bottled Wolffia I can recommend at any time. The Lemnas are also handy at any time you need them. Mr. Gilman writes me he saw the little globular Wolffia in the water at Green Bay 4 or 5 years ago & had it in his aquarium but supposed it was an algae of some sort & passed it by without examination or inquiry.

I find the Wolffia arhiza in many localities — not all the localities of Lemna however contain it — but the other kind I only find, to the present time, in one locality — it seems confined to one side of the river —

Does L. pupusilla or L. gibba grow in our neighborhood? I have not seen them, or else do not know them. I should suppose

I. gibba would be easily recognized, but the I. pachystilla I enquire much resembles I. Nimmo. — Do you want the I. enneza? — Gray says that the little protuberances on bulbets of Lemnaceae, sink to the bottom of the water in autumn and rise to develope on the surface in the Spring.

I know nothing with regard to this last assertion disposed to think he is somewhat mistaken. Lindley nor Bennett say nothing about their reproduction, except Bennett surmises that some of the species are only propagated by vegetable budding. Reasoning from analogy, I should suppose that they can only be produced through the winter by the seeds; & because we have not detected them in some of the species, is often a precarious way of proving their non existence. Vigilance is said to be the watchword of Liberty!!! Hasty, needy words of doubt are not necessary in microscopic botany. — Hope the Wolfias will prove an good order. Respectfully yours.

L. H. Bigelow

Rec Aug 28
Ans Saturday

187 Lend Str East
Detroit Aug 26th 1867

Dear Doctor

Bottled in the Cork
You will find some of the Wolfins
I hope they will go fresh & safe
and arrive in good order
The post Masters make a fuss
about the glass bottle. Tell me
soon if they come safe. If they
spoil I will adopt some other way
of sending them & you before
I am done Stark.

Yours cordially
J. H. Bayless

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Rec Sept 12
Ans Oct 11

87 Canfield Str. East
Detroit Sept 9th 67

Dear Doctor

I have been quite un-
well ever since I received your last
letter and consequently have not
obtained the seeds of Nymphaea & Nuphar
you desired. I will get them soon.
Did you ever collect the seed of the
Nymphaea? It is no easy job. As
soon as the flower drops, the young
capsules sink to the bottom of the pond
& open & burst in that situation
making them very difficult to obtain.
With regard to separating the
Wolfia plants from the Lemnas there
is no difficulty - with the Strainer as
you suggest - or otherwise but you will
find that it is impossible to separate
the two species of Wolfia in that way
and I know of no other but to pick

them out individually which can be done quite rapidly after being separated from the Genus.

Mr. Gilman has returned from Lake Superior & was fortunate enough to find & collect for you your variety—I considered it a conspicuous one which I was unable to procure for you. By the way I think Dudley must have been mistaken in finding it here. I have not heard from Mr. Wheeler. He did not return this year to the Station where D. Stygius was found last year. I see no chance of getting it now. — You asked me once about Vitis aestivalis. Winchell says it grows at Ann Arbor, but here I find nothing but the V. cordifolia. — I want to ask you two or three questions about them. 1st Is the Mustang grape of Texas Vitis Vulpina? 2nd Has Ampelopsis any better claim to being separated from Vitis than the section Cissus of Torrey & Gray? 3rd Do all the foreign Cissi need to be

united with Viti the same as the Amer-
ican? Dr. Geo. Don says the genus
Ampelopsis is intermediate between Cissus
& Vitis, but I notice he includes our
Cissi in his genus Ampelopsis &
Torrey & Gray keeps it distinct. In
speaking upon the genus Cissus Don
observes that it is hardly distinguishable
from Vitis. Have you published
any thing relative to the grapes of our
Country since your observations in the
Transactions in answer to the inaccuracies
of Prof. Swallow?

I have been watching the habits & motions
of our Wolfias a little. Sometimes they
sink to the bottom of the vessel & then
again rise to the surface. In cool
cloudy weather I think they have a
disposition to sink & in warm sun-
-shiney weather to rise again. I some-
times observe that a minute bubble of
air appears to be attached to the little
plants (can it be excreted from it?) &

I suppose it may in some way facilitate its rising & falling movements did you notice it?

The pieces I collected for you are ready any time you need them.

Is Gray's new Edition of the Manual ready for delivery yet?

Most Respectfully Yours

Asa Gray

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Rec Oct 30
Ans Nov 1

157 Lamed Street East
Detroit Oct 28th 1867

My dear Doctor

I send by mail today the pencil including those collected on Lake Superior by Mr Gilman.

Mr Hodosen has no mark - were collected July 11th 1867.

Those containing a paper with

1 perforation was collected July 5th 67
2 perforations " June 27th 67
3 " July 15th. "
4 " July 12th. "
5 " July 9th. "
with Cordyloba Oct 17th 1867

I would like to know if you receive them in good order.

I think you can find 100 good specimens of Dentalium & basepi & also of the back-=y can per 100 good ones. The others are of no account. postage stamps 40 cts binders boards 20c making in all $12.60. I had to crowd them to get them within the limits to mail. I shall feel uneasy till I hear how you like them.

Mr. Adair the gardener here tells me there is growing in this neighborhood a grape with small bunches & a small dark berry in Lizzi & appearance like the V. Cordifolia but which ripens very early (exact time I do not know) sometime before the Cordifolia — If this is a fact I think it is worth looking after as it is my opinion that the improvement of the Cordifolia in the manner that the Catawba Isabella and grapes of that class have been will be the case of all our wild grapes. — Most Respectfully yours

J. M. Bigelow

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Rec Dec 9
Ans Jan 26

187 Jamd Street East
Detroit Nov. 5th 1867

My dear Doctor:

Your of 1st Nov. with enclosure was thankfully received as also that of the 26th Ult. in due time. — The only excuse I had for waiting was the broaching that "project" I have had on my mind.

This project however was contingent upon another which I have been looking anxiously to be solved one way or the other every day.

But I will delay no longer the answer to yours. —

My "propet" is to bring two specimens of your Pereus Gigantea full size home & set it up in Cabinet as it stands in nature, — One specimen for the Agricultural department of the Patent Office & the other for the St Louis Academy of Scienc — Let me explain how it can be done — You know that at least 90 per cent or there= =abouts of the weight & substance of the tree is water & will be dissipated by drying. The drying can be accelerated by cutting the tree into sections of about 2 feet in length & excavating the central fleshy core within the reticulated woody hollow Cylinder which will retain the section in its natural Shape & dimensions nearly when completely dried. When the central pith is taken out so as to admit the air the drying will take place in a very short time.

It can then be neatly packed in a light hen coop box, each section by it= =self. —— To set up again all we need is to make a light but strong wooden, or Stove pipe case about the size of the central ex= =cavation in sections that can be fastened at their joints. — Place the sections of the Cactus over the case as we build the tree from the foundation upward. — The branches if necessary can be put up in the same way & fastened by screws & iron pedicels to the main = trunk at their proper places. — If you object & say we can not get our Specimins without felling the tree & spoiling it especially the Spine, I answer that a simple contrivance

Similar to a fruit ladder with a pully & rope attached will enable us to cut & lower each section from the top. The next question is how are we to get at our trees & transport them home without great expense. Answer. Let the base of our first land operations be at Fort Yuma or Fort Mohave. Fort Mohave I think is in the midst of the trees & I know that Fort Yuma can not be more than 2 or 3 days travel from them by wagon which doubtless with plenty of soldiers for escort & assistants can be easily procured at either of those Stations from Army detachements. The sections of the Cactus can be boxed at the Spot in such a manner that they will dry without difficulty, taken by wagon to the Fort & there when fully dried can be shipped as we please.

When properly boxed they can be transported any where with perfect safety to the Specis. They can also when properly arranged be put up & taken down in half a days time

With regard to the expense I think that at an exhibition of the "Remodeling of the Cactus" when set up, accompanied by a lecture from Dr. Engelmann On the Geographical & Botanical relations of Arizona the natural place of its growth repeated one or two evenings in the City of St Louis would pay the whole expense of procuring & putting it up

Then the exhibition of the other Specimen at all the great Cities of the Union before setting it up at the Patent Office would cover all the expense. Might it not also grace the Garden of Mr. Shaw more appropriately & more handsomely than thousands of dollars spent in Statuary?

I saw Mr. Gilman since you wrote — I will send my Party piece one of these days. Dr Lanterell is dead.

Most respectfully & cordially yours

Wm M. Bigelow

Dr. Geo. Englemann

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Recd Feby 13 1867 Jarvis Street East

Bigelow Detroit Feby 9th 1868

Dear Doctor

Your last letter = is mislaid & I cannot quote the date - it received. I communicated with Mr. Gilman concerning the Sambuci - by the way S. Rubens is common in this neighborhood.

I guess you are right about the cost of getting a specimen of the Cereus gigantea, but I only wish I could convince you by an occular demonstration that it can be done. Thurber whose temperament is generally so cold & calculating for once was so overcome with enthusiasm as to exclaim on beholding it for the first time "It seemed almost worth the journey (across the plains) to see it" to do grand & dreary that description was not adiquate to convey an idea of it"

If I ever get an opportunity I will bring it home and then you will see what you will see. I have made sections of the tree, I have seen the central woody portion of the tree in its normal position & know what it is capable of supporting. I have pushed a full grown tree over with my fingers but this is not the way to get the sections to bring home they must be cut from the top as it stands — the felling of the tree would spoil it. The flesh is full of cells & which dries it becomes spongy without shrinkage & as light as a cork.

I enclose a small sample of a new preparation of an old medicine which I call "Opii Purificata" Will you give it a trial? you will find it more convenient to use in any form you choose & equal in all respects to Wood's deodorized Liquid

of Opium or McMunn's Elixir
you may ~~desire~~ use it in doses
of 1 gram or more, freely in
all cases where opium or morphine
is indicated — and in many cases
where ediosyncrasy forbids them
use you may give this with
delightful effect. Think up
quickly & let me know what you
honestly think of it. If you
find it equal to my expectations
(I have used it for years) advise
your druggists of it who can procure
as much as they want of H. Steans
Detroit the profits of which will
accrue to me excepting the usual
commissions for selling. I give
it to the trade at rates so that
they can retail to the physician
at 1.00 ~~off~~ the half ounce which I
consider equivalent to 2 drams of
Sulph Morphine by which you will
see it is much cheaper & in

many cases a better medicine than that indispensable article. If your druggists fail to send for this article and your friends wish to give it a further trial if they will enclose a dollar and can send by mail ½ an ounce done up in paper at a cost of but 6 cents postage. It will keep in paper as well as bottles except the greater liability to get dust into it.

Most respectfully
Yours John H. Bigelow

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Remarks on Juncí.

J. balticus I have found only in sandy soil, along the river & in Canada 1-2 miles inland

J. polycarminatus Mich grows in sandy soil & sandy loam along & in ditches, along rivulets, marshy meadows

J. Vasey & Greenii have the same locality. In one single instance I found J. Vaseyi growing alone by itself, in all other cases together with J. Greenii, their roots often intermingled Scleria triglomerata was always an index to find J. Greenii also, it grows always & alone with it. The soil is al~~most~~ ways wet in Spring, but dry in Summer; it selects ~~pl~~ a little elevated places in the swampy woods, where Osmunda Cinnamomea grows. & also lacrinium's. I did never find them in fields, never in ditches, never on meadows but only in cleared wet woods ~~a little~~ without trees covered with shrubs & on the edge of swampy places; the soil is Sandy loam. Liatris

scariosa, Nabalus racemosus, grows in the same locality. I. marginatus always accompanies it. In one locality I found it with Bartonia tenella, Silene pauciflora & Drosera rotundifolia, in another with Andropogon furcatus & Scoparius & Sorghum nutans, in another in the neighbourhood of Ludwigia alternifolia & ~~Gerardia ped~~. Pedicularis lanceolata Michlenbergia glomerata, Hypericum prolificum Rosa carolina, Archangelica hirsuta, Veronica virginica, Rhynchospora glomerata

Xyris flabbosa

MISSOURI BOTANICAL GARDEN
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Rec March 14
Ans same day

D. & M. & G. T. R. Junction
Detroit March 11th 1874

My Dear Dr. Engelmann

I fear I am late I
have to thank you for your splendid
Monograph on the Yucca which was
received & studied with pleasure a long
time ago, although it was sometime after you
had sent it before I got it.
I receive by mail every thing sent me
directed simply to Detroit. — I live
at the Detroit & Milwaukee Junction 3
Miles from the City post office but my mail
matter is sent out every day to the junction
I received your paper through Mr. Stearns
my Druggist where Mr. Gilman had left it
for me. Sometimes it is a good while before
I get any thing in that way whereas when
addressed to me directly by mail I get it
immediately.
I have been puzzled about the ~~Botanical~~
botanical history & Synonymy of

the proper Ergot plant. The attempt at a description of it by the U.S. Dispensatory is about as confused as the older botanists were with regard to the nature of the plant itself.

If I understand it, the ergot or spurred rye is only the mycelium of the proper plant commencing parasitically on or within, taking the place of the ovary of the rye and otherwise modifying its growth. — The Oidium noticed by so many is a microscopic parasite of that again. — Then about the name there is again confusion. Tulasne who appears to have studied the plant thoroughly, according to Henfrey calls it Cordyceps purpurea which our books on the Materia Medica say that he calls it Claviceps purpurea

Lindley has not this name in his list of Fungaceæ & he also attributes the authorship of Cordyceps to Fries although his Vegetable Kingdom is a written

after Tulasne had made & published
his studies on Ergot.

Have you ever made any studies
of it? Have you a figure of the plant
after the formation of its receptacle by
any one else or can you tell me how
or where I can get it?

Your latest letters are not at hand
now but I remember that you wrote
that the Californian Botanists wanted
to know where my locality of "Duffields
Ranch" was & I think I answered it at
the time. — It is about 15 miles I
think almost directly East from the
City of Sonora.

I am most respectfully
yours. Tolum M. Bigelow

Boyle

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Rottenrock Canyon — P. Lambertiana Cone

Bodenosa deflexa S. Calif. cone & leaves D. Young

P. ponderosa 1874 825 Summit Spring
" " 67 Santa Fe
1875 251 Peach Valley — purple cone & seed — deflexa? Jeffreyi?
" 243. 254 Mt. Diablo " — 254 Cone, "Bullspike"
652 cone

P. ponderosa "Hartwegii"? 1874 652 Santa Rita east of Tucson. P. Arizonica n.sp. near Ponderosa Cone like small pond.

P. contorta 1875 383 Head of Kern River

P. Chihuahua 1874 649 Sonorita Valley cone

P. flexilis " 783 Mt Graham — fol. aequata semilata, cone pendulous
" 654 Santa Rita — " " cone with long reflexed apophyses
1875 350 Pinaleno Mts cone } ordinary flexilis
266 Mt Graham cone }
P. Engelmanni flexilis 1874 1001 Sonorita Valley.

Balfouriana 1875 404 Mt Whitney
sebiniana 1875 — Walker Basin

Abies concolor 1875 Pinaleno Mts no 353
1874 Mt Graham 786

Pinus Engelmanni 1874 Mt Graham · 784

Pseudotsuga Douglasii 1874 Mt Grah. 785

Libocedrus decurrens 1875 423 Kern River

Sequoia gigantea Cone

Jeffreyi 1875 337 Kern River
— 1874 Chiricahua Agency
" Camp Apache
" " " with Chamaebatia
" 43 Santa Fe
" 140 Fort Wingate N Mex

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Rec'd July 24
Ans'd do

D. & M. & G. T. R. Junction
Near Detroit July 21st 1872

My dear Doctor

Your Missile of the
17th ult. per Mr. Gillman, after taking
the rounds to Tawas P.C. was left at
Mr - Stearns Drug store where I had
the happiness of finding it & devouring
its contents but 3 or 4 days ago.

Well in the 1st place I am now
Rural = Iberal = Iberalizing exactly 4
miles north of the City Hall Detroit
and as the said Hall is but a few rods
of the Boundary line between her
Majesty's Dominion Ontario and the
United States Consequently I am very
near the City limits of Detroit - indeed
I expect to be annexed before long
Detroit is my post Office & I get letters
sent simply to Detroit within a day or two
I get my mail at the Detroit and

Milwaukee & Grand Trunk Railway
Junction. (M. & M. & G. T. R. Junction)
2nd place. Answer to your question
"Where in the world is Duffields Ranch?"
As near as I can recollect it is about
14 miles Easterly from the City of Sonora
Calefornia — As it was away off in
the mountain Pineries & I staid there
one night on a farm or rather lumber
shanty (very thing of the Kind in Calefornia
being called a Ranch) with a man
named Duffield & so named it in
my notes. I say Easterly from Sonora
because I do not know the exact
direction. If I remember rightly it
was there that I first collected the
Libocedrus and I remember the
Lowrianthad but that is all. — Torrey
says it was a female but did not know
3rd By the way while on my trip
to Duffields Ranch I collected at
Knights Ferry the Crossing of the
Stanislaus River a Sicotiana

refund doubtfully to Plumbaginifolia Dun.
by Dr Torrey exalted to a new species by
Watson in Kings Report — I would
like right well to get some good seeds
of it for Horticultural purposes.
Do you know any thing about it?
4th I have not yet commenced a
living Cactarium though I hope to do
so soon but I have friends who are
able & willing to take care of it for
me therefore if you can send a living
branch of O. Bigelovii I should be glad.
A little joint of O. Basilaris or some
other Cacti of which you have an
abundance would also by very
welcome.

Then it appears Newberry made a
mistake also in calling our Abies a
grandis as I did in calling it Balsamea

In haste I am most respectfully
Yours. John M Bigelow

P.S. over

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Your letter calling for places
nowhere are always so welcome
& gives me real pleasure in
answering

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